

Serial Number: 09/990,080

CRF Processing Date: 11/27/01

Edited by: DC

Verified by: DC

(STIC sta

☐

Changed a file from non-ASCII to ASCII

☐

Changed the margins in cases where the sequence text was "wrapped" down to the next line.

☐

Edited a format error in the Current Application Data section, specifically:

ENTERED

☐

Edited the Current Application Data section with the actual current number. The number inputted by the applicant was ☐ the prior application data; or ☐ other _____.

☐

Added the mandatory heading and subheadings for "Current Application Data".

☐

Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.

☐

Changed the spelling of a mandatory field (the headings or subheadings), specifically:

☐

Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were:

☐

Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

☐

Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.

☐

Inserted colons after headings/subheadings. Headings edited included:

☐

Deleted extra, invalid, headings used by an applicant, specifically:

☐

Deleted: ☐ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/filename at end of file; ☐ page numbers throughout text; ☐ other invalid text, such as _____.

☐

Inserted mandatory headings, specifically: _____

☐

Corrected an obvious error in the response, specifically: _____

☐

Edited identifiers where upper case is used but lower case is required, or vice versa.

☐

Corrected an error in the Number of Sequences field, specifically: _____

☐

A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.

☐

Deleted *ending* stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____

☒

Other:

Corrected obvious mistakes (2) in numbering of amino acid.

*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/990,080

DATE: 12/03/2001

TIME: 09:26:41

Input Set : A:\PTO.DC.txt

Output Set: N:\CRF3\12032001\I990080.raw

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3 <110> APPLICANT: Morin, Gregg B.
4   Geron Corporation
6 <120> TITLE OF INVENTION: Human Telomerase Catalytic Subunit Variants
8 <130> FILE REFERENCE: 018/258c
C--> 10 <140> CURRENT APPLICATION NUMBER: US/09/990,080
C--> 11 <141> CURRENT FILING DATE: 1998-08-03
W--> 13 <140> CURRENT APPLICATION NUMBER: US 09/128,354
C--> 14 <141> CURRENT FILING DATE: 1998-08-03
16 <150> PRIOR APPLICATION NUMBER: US 09/052,864
17 <151> PRIOR FILING DATE: 1998-03-31
19 <160> NUMBER OF SEQ ID NOS: 21
21 <170> SOFTWARE: PatentIn Ver. 2.0
23 <210> SEQ ID NO: 1
24 <211> LENGTH: 4015
25 <212> TYPE: DNA
26 <213> ORGANISM: Homo sapiens
28 <220> FEATURE:
29 <221> NAME/KEY: CDS
30 <222> LOCATION: (56)..(3454)
31 <223> OTHER INFORMATION: human telomerase reverse transcriptase (hTERT) cDNA
33 <400> SEQUENCE: 1
34 gcagcgctgc gtcctgctgc gcacgtggga agccctggcc ccggccaccc ccgcg atg 58
35                                     Met
36                                     1
38 ccg cgc gct ccc cgc tgc cga gcc gtg cgc tcc ctg ctg cgc agc cac 106
39 Pro Arg Ala Pro Arg Cys Arg Ala Val Arg Ser Leu Leu Arg Ser His
40         5                10                15
42 tac cgc gag gtg ctg ccg ctg gcc acg ttc gtg cgg cgc ctg ggg ccc 154
43 Tyr Arg Glu Val Leu Pro Leu Ala Thr Phe Val Arg Arg Leu Gly Pro
44         20                25                30
46 cag ggc tgg cgg ctg gtg cag cgc ggg gac ccg gcg gct ttc cgc gcg 202
47 Gln Gly Trp Arg Leu Val Gln Arg Gly Asp Pro Ala Ala Phe Arg Ala
48         35                40                45
50 ctg gtg gcc cag tgc ctg gtg tgc gtg ccc tgg gac gca cgg ccg ccc 250
51 Leu Val Ala Gln Cys Leu Val Cys Val Pro Trp Asp Ala Arg Pro Pro
52 50                55                60                65
54 ccc gcc gcc ccc tcc ttc cgc cag gtg tcc tgc ctg aag gag ctg gtg 298
55 Pro Ala Ala Pro Ser Phe Arg Gln Val Ser Cys Leu Lys Glu Leu Val
56         70                75                80
58 gcc cga gtg ctg cag agg ctg tgc gag cgc ggc gcg aag aac gtg ctg 346
59 Ala Arg Val Leu Gln Arg Leu Cys Glu Arg Gly Ala Lys Asn Val Leu
60         85                90                95
62 gcc ttc gcc ttc gcg ctg ctg gac ggg gcc cgc ggg ggc ccc ccc gag 394
63 Ala Phe Gly Phe Ala Leu Leu Asp Gly Ala Arg Gly Gly Pro Pro Glu
64         100               105               110
66 gcc ttc acc acc agc gtg cgc agc tac ctg ccc aac acg gtg acc gac 442
67 Ala Phe Thr Thr Ser Val Arg Ser Tyr Leu Pro Asn Thr Val Thr Asp

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PATENT APPLICATION: US/09/990,080

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Input Set : A:\PTO.DC.txt

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68	115	120	125	
70	gca ctg cgg ggg agc ggg gcg tgg ggg ctg ctg ctg cgc cgc gtg ggc	490		
71	Ala Leu Arg Gly Ser Gly Ala Trp Gly Leu Leu Leu Arg Arg Val Gly			
72	130	135	140	145
74	gac gac gtg ctg gtt cac ctg ctg gca cgc tgc gcg ctc ttt gtg ctg	538		
75	Asp Asp Val Leu Val His Leu Leu Ala Arg Cys Ala Leu Phe Val Leu			
76	150	155	160	
78	gtg gct ccc agc tgc gcc tac cag gtg tgc ggg ccg ccg ctg tac cag	586		
79	Val Ala Pro Ser Cys Ala Tyr Gln Val Cys Gly Pro Pro Leu Tyr Gln			
80	165	170	175	
82	ctc ggc gct gcc act cag gcc cgg ccc ccg cca cac gct agt gga ccc	634		
83	Leu Gly Ala Ala Thr Gln Ala Arg Pro Pro Pro His Ala Ser Gly Pro			
84	180	185	190	
86	cga agg cgt ctg gga tgc gaa cgg gcc tgg aac cat agc gtc agg gag	682		
87	Arg Arg Arg Leu Gly Cys Glu Arg Ala Trp Asn His Ser Val Arg Glu			
88	195	200	205	
90	gcc ggg gtc ccc ctg ggc ctg cca gcc ccg ggt gcg agg agg cgc ggg	730		
91	Ala Gly Val Pro Leu Gly Leu Pro Ala Pro Gly Ala Arg Arg Arg Gly			
92	210	215	220	225
94	ggc agt gcc agc cga agt ctg ccg ttg ccc aag agg ccc agg cgt ggc	778		
95	Gly Ser Ala Ser Arg Ser Leu Pro Leu Pro Lys Arg Pro Arg Arg Gly			
96	230	235	240	
98	gct gcc cct gag ccg gag cgg acg ccc gtt ggg cag ggg tcc tgg gcc	826		
99	Ala Ala Pro Glu Pro Glu Arg Thr Pro Val Gly Gln Gly Ser Trp Ala			
100	245	250	255	
102	cac ccg ggc agg acg cgt gga ccg agt gac cgt ggt ttc tgt gtg gtg	874		
103	His Pro Gly Arg Thr Arg Gly Pro Ser Asp Arg Gly Phe Cys Val Val			
104	260	265	270	
106	tca cct gcc aga ccc gcc gaa gaa gcc acc tct ttg gag ggt gcg ctc	922		
107	Ser Pro Ala Arg Pro Ala Glu Glu Ala Thr Ser Leu Glu Gly Ala Leu			
108	275	280	285	
110	tct ggc acg cgc cac tcc cac cca tcc gtg ggc cgc cag cac cac gcg	970		
111	Ser Gly Thr Arg His Ser His Pro Ser Val Gly Arg Gln His His Ala			
112	290	295	300	305
114	ggc ccc cca tcc aca tcg cgg cca cca cgt ccc tgg gac acg cct tgt	1018		
115	Gly Pro Pro Ser Thr Ser Arg Pro Pro Arg Pro Trp Asp Thr Pro Cys			
116	310	315	320	
118	ccc ccg gtg tac gcc gag acc aag cac ttc ctc tac tcc tca ggc gac	1066		
119	Pro Pro Val Tyr Ala Glu Thr Lys His Phe Leu Tyr Ser Ser Gly Asp			
120	325	330	335	
122	aag gag cag ctg cgg ccc tcc ttc cta ctc agc tct ctg agg ccc agc	1114		
123	Lys Glu Gln Leu Arg Pro Ser Phe Leu Leu Ser Ser Leu Arg Pro Ser			
124	340	345	350	
126	ctg act ggc gct cgg agg ctc gtg gag acc atc ttt ctg ggt tcc agg	1162		
127	Leu Thr Gly Ala Arg Arg Leu Val Glu Thr Ile Phe Leu Gly Ser Arg			
128	355	360	365	
130	ccc tgg atg cca ggg act ccc cgc agg ttg ccc cgc ctg ccc cag cgc	1210		
131	Pro Trp Met Pro Gly Thr Pro Arg Arg Leu Pro Arg Leu Pro Gln Arg			
132	370	375	380	385

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Input Set : A:\PTO.DC.txt

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134	tac	tgg	caa	atg	cgg	ccc	ctg	ttt	ctg	gag	ctg	ctt	ggg	aac	cac	gcg	1258
135	Tyr	Trp	Gln	Met	Arg	Pro	Leu	Phe	Leu	Glu	Leu	Gly	Asn	His	Ala		
136					390					395				400			
138	cag	tgc	ccc	tac	ggg	gtg	ctc	ctc	aag	acg	cac	tgc	ccg	ctg	cga	gct	1306
139	Gln	Cys	Pro	Tyr	Gly	Val	Leu	Leu	Lys	Thr	His	Cys	Pro	Leu	Arg	Ala	
140				405					410					415			
142	gcg	gtc	acc	cca	gca	gcc	ggt	gtc	tgt	gcc	cgg	gag	aag	ccc	cag	ggc	1354
143	Ala	Val	Thr	Pro	Ala	Ala	Gly	Val	Cys	Ala	Arg	Glu	Lys	Pro	Gln	Gly	
144				420				425						430			
146	tct	gtg	gcg	gcc	ccc	gag	gag	gag	gac	aca	gac	ccc	cgt	cgc	ctg	gtg	1402
147	Ser	Val	Ala	Ala	Pro	Glu	Glu	Glu	Asp	Thr	Asp	Pro	Arg	Arg	Leu	Val	
148		435					440					445					
150	cag	ctg	ctc	cgc	cag	cac	agc	agc	ccc	tgg	cag	gtg	tac	ggc	ttc	gtg	1450
151	Gln	Leu	Leu	Arg	Gln	His	Ser	Ser	Pro	Trp	Gln	Val	Tyr	Gly	Phe	Val	
152	450				455					460						465	
154	cgg	gcc	tgc	ctg	cgc	cgg	ctg	gtg	ccc	cca	ggc	ctc	tgg	ggc	tcc	agg	1498
155	Arg	Ala	Cys	Leu	Arg	Arg	Leu	Val	Pro	Pro	Gly	Leu	Trp	Gly	Ser	Arg	
156				470					475						480		
158	cac	aac	gaa	cgc	cgc	ttc	ctc	agg	aac	acc	aag	aag	ttc	atc	tcc	ctg	1546
159	His	Asn	Glu	Arg	Arg	Phe	Leu	Arg	Asn	Thr	Lys	Lys	Phe	Ile	Ser	Leu	
160				485				490						495			
162	ggg	aag	cat	gcc	aag	ctc	tcg	ctg	cag	gag	ctg	acg	tgg	aag	atg	agc	1594
163	Gly	Lys	His	Ala	Lys	Leu	Ser	Leu	Gln	Glu	Leu	Thr	Trp	Lys	Met	Ser	
164		500					505					510					
166	gtg	cgg	gac	tgc	gct	tgg	ctg	cgc	agg	agc	cca	ggg	ggt	ggc	tgt	ggt	1642
167	Val	Arg	Asp	Cys	Ala	Trp	Leu	Arg	Arg	Ser	Pro	Gly	Val	Gly	Cys	Val	
168		515				520						525					
170	ccg	gcc	gca	gag	cac	cgt	ctg	cgt	gag	gag	atc	ctg	gcc	aag	ttc	ctg	1690
171	Pro	Ala	Ala	Glu	His	Arg	Leu	Arg	Glu	Glu	Ile	Leu	Ala	Lys	Phe	Leu	
172	530				535					540						545	
174	cac	tgg	ctg	atg	agt	gtg	tac	gtc	gtc	gag	ctg	ctc	agg	tct	ttc	ttt	1738
175	His	Trp	Leu	Met	Ser	Val	Tyr	Val	Val	Glu	Leu	Leu	Arg	Ser	Phe	Phe	
176				550				555							560		
178	tat	gtc	acg	gag	acc	acg	ttt	caa	aag	aac	agg	ctc	ttt	ttc	tac	cgg	1786
179	Tyr	Val	Thr	Glu	Thr	Thr	Phe	Gln	Lys	Asn	Arg	Leu	Phe	Phe	Tyr	Arg	
180				565				570						575			
182	aag	agt	gtc	tgg	agc	aag	ttg	caa	agc	att	gga	atc	aga	cag	cac	ttg	1834
183	Lys	Ser	Val	Trp	Ser	Lys	Leu	Gln	Ser	Ile	Gly	Ile	Arg	Gln	His	Leu	
184			580				585					590					
186	aag	agg	gtg	cag	ctg	cgg	gag	ctg	tcg	gaa	gca	gag	gtc	agg	cag	cat	1882
187	Lys	Arg	Val	Gln	Leu	Arg	Glu	Leu	Ser	Glu	Ala	Glu	Val	Arg	Gln	His	
188		595				600						605					
190	cgg	gaa	gcc	agg	ccc	gcc	ctg	ctg	acg	tcc	aga	ctc	cgc	ttc	atc	ccc	1930
191	Arg	Glu	Ala	Arg	Pro	Ala	Leu	Leu	Thr	Ser	Arg	Leu	Arg	Phe	Ile	Pro	
192	610				615					620						625	
194	aag	cct	gac	ggg	ctg	cgg	ccg	att	gtg	aac	atg	gac	tac	gtc	gtg	gga	1978
195	Lys	Pro	Asp	Gly	Leu	Arg	Pro	Ile	Val	Asn	Met	Asp	Tyr	Val	Val	Gly	
196				630				635						640			
198	gcc	aga	acg	ttc	cgc	aga	gaa	aag	agg	gcc	gag	cgt	ctc	acc	tcg	agg	2026

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199	Ala	Arg	Thr	Phe	Arg	Arg	Glu	Lys	Arg	Ala	Glu	Arg	Leu	Thr	Ser	Arg	
200				645					650					655			
202	gtg	aag	gca	ctg	ttc	agc	gtg	ctc	aac	tac	gag	cgg	gcg	cgg	cgc	ccc	2074
203	Val	Lys	Ala	Leu	Phe	Ser	Val	Leu	Asn	Tyr	Glu	Arg	Ala	Arg	Arg	Pro	
204				660					665					670			
206	ggc	ctc	ctg	ggc	gcc	tct	gtg	ctg	ggc	ctg	gac	gat	atc	cac	agg	gcc	2122
207	Gly	Leu	Leu	Gly	Ala	Ser	Val	Leu	Gly	Leu	Asp	Asp	Ile	His	Arg	Ala	
208				675					680					685			
210	tgg	cgc	acc	ttc	gtg	ctg	cgt	gtg	cgg	gcc	cag	gac	ccg	ccg	cct	gag	2170
211	Trp	Arg	Thr	Phe	Val	Leu	Arg	Val	Arg	Ala	Gln	Asp	Pro	Pro	Pro	Glu	
212	690								695					700		705	
214	ctg	tac	ttt	gtc	aag	gtg	gat	gtg	acg	ggc	gcg	tac	gac	acc	atc	ccc	2218
215	Leu	Tyr	Phe	Val	Lys	Val	Asp	Val	Thr	Gly	Ala	Tyr	Asp	Thr	Ile	Pro	
216					710					715					720		
218	cag	gac	agg	ctc	acg	gag	gtc	atc	gcc	agc	atc	atc	aaa	ccc	cag	aac	2266
219	Gln	Asp	Arg	Leu	Thr	Glu	Val	Ile	Ala	Ser	Ile	Ile	Lys	Pro	Gln	Asn	
220					725					730					735		
222	acg	tac	tgc	gtg	cgt	cgg	tat	gcc	gtg	gtc	cag	aag	gcc	gcc	cat	ggg	2314
223	Thr	Tyr	Cys	Val	Arg	Arg	Tyr	Ala	Val	Val	Gln	Lys	Ala	Ala	His	Gly	
224					740				745					750			
226	cac	gtc	cgc	aag	gcc	ttc	aag	agc	cac	gtc	tct	acc	ttg	aca	gac	ctc	2362
227	His	Val	Arg	Lys	Ala	Phe	Lys	Ser	His	Val	Ser	Thr	Leu	Thr	Asp	Leu	
228					755				760					765			
230	cag	ccg	tac	atg	cga	cag	ttc	gtg	gct	cac	ctg	cag	gag	acc	agc	ccg	2410
231	Gln	Pro	Tyr	Met	Arg	Gln	Phe	Val	Ala	His	Leu	Gln	Glu	Thr	Ser	Pro	
232	770						775					780				785	
234	ctg	agg	gat	gcc	gtc	gtc	atc	gag	cag	agc	tcc	tcc	ctg	aat	gag	gcc	2458
235	Leu	Arg	Asp	Ala	Val	Val	Ile	Glu	Gln	Ser	Ser	Ser	Leu	Asn	Glu	Ala	
236					790					795					800		
238	agc	agt	ggc	ctc	ttc	gac	gtc	ttc	cta	cgc	ttc	atg	tgc	cac	cac	gcc	2506
239	Ser	Ser	Gly	Leu	Phe	Asp	Val	Phe	Leu	Arg	Phe	Met	Cys	His	His	Ala	
240					805					810					815		
242	gtg	cgc	atc	agg	ggc	aag	tcc	tac	gtc	cag	tgc	cag	ggg	atc	ccg	cag	2554
243	Val	Arg	Ile	Arg	Gly	Lys	Ser	Tyr	Val	Gln	Cys	Gln	Gly	Ile	Pro	Gln	
244					820				825					830			
246	ggc	tcc	atc	ctc	tcc	acg	ctg	ctc	tgc	agc	ctg	tgc	tac	ggc	gac	atg	2602
247	Gly	Ser	Ile	Leu	Ser	Thr	Leu	Leu	Cys	Ser	Leu	Cys	Tyr	Gly	Asp	Met	
248					835				840					845			
250	gag	aac	aag	ctg	ttt	gcg	ggg	att	cgg	cgg	gac	ggg	ctg	ctc	ctg	cgt	2650
251	Glu	Asn	Lys	Leu	Phe	Ala	Gly	Ile	Arg	Arg	Asp	Gly	Leu	Leu	Leu	Arg	
252	850					855						860				865	
254	ttg	gtg	gat	gat	ttc	ttg	ttg	gtg	aca	cct	cac	ctc	acc	cac	gcg	aaa	2698
255	Leu	Val	Asp	Asp	Phe	Leu	Leu	Val	Thr	Pro	His	Leu	Thr	His	Ala	Lys	
256					870					875					880		
258	acc	ttc	ctc	agg	acc	ctg	gtc	cga	ggt	gtc	cct	gag	tat	ggc	tgc	gtg	2746
259	Thr	Phe	Leu	Arg	Thr	Leu	Val	Arg	Gly	Val	Pro	Glu	Tyr	Gly	Cys	Val	
260					885					890					895		
262	gtg	aac	ttg	cgg	aag	aca	gtg	gtg	aac	ttc	cct	gta	gaa	gac	gag	gcc	2794
263	Val	Asn	Leu	Arg	Lys	Thr	Val	Val	Asn	Phe	Pro	Val	Glu	Asp	Glu	Ala	

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DATE: 12/03/2001
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264          900          905          910
266 ctg ggt ggc acg gct ttt gtt cag atg ccg gcc cac ggc cta ttc ccc 2842
267 Leu Gly Gly Thr Ala Phe Val Gln Met Pro Ala His Gly Leu Phe Pro
268          915          920          925
270 tgg tgc ggc ctg ctg ctg gat acc cgg acc ctg gag gtg cag agc gac 2890
271 Trp Cys Gly Leu Leu Leu Asp Thr Arg Thr Leu Glu Val Gln Ser Asp
272 930          935          940          945
274 tac tcc agc tat gcc cgg acc tcc atc aga gcc agt ctc acc ttc aac 2938
275 Tyr Ser Ser Tyr Ala Arg Thr Ser Ile Arg Ala Ser Leu Thr Phe Asn
276          950          955          960
278 cgc ggc ttc aag gct ggg agg aac atg cgt cgc aaa ctc ttt ggg gtc 2986
279 Arg Gly Phe Lys Ala Gly Arg Asn Met Arg Arg Lys Leu Phe Gly Val
280          965          970          975
282 ttg cgg ctg aag tgt cac agc ctg ttt ctg gat ttg cag gtg aac agc 3034
283 Leu Arg Leu Lys Cys His Ser Leu Phe Leu Asp Leu Gln Val Asn Ser
284          980          985          990
286 ctc cag acg gtg tgc acc aac atc tac aag atc ctc ctg ctg cag gcg 3082
287 Leu Gln Thr Val Cys Thr Asn Ile Tyr Lys Ile Leu Leu Leu Gln Ala
288          995          1000          1005
290 tac agg ttt cac gca tgt gtg ctg cag ctc cca ttt cat cag caa gtt 3130
291 Tyr Arg Phe His Ala Cys Val Leu Gln Leu Pro Phe His Gln Gln Val
292 1010          1015          1020          1025
294 tgg aag aac ccc aca ttt ttc ctg cgc gtc atc tct gac acg gcc tcc 3178
295 Trp Lys Asn Pro Thr Phe Phe Leu Arg Val Ile Ser Asp Thr Ala Ser
296          1030          1035          1040
298 ctc tgc tac tcc atc ctg aaa gcc aag aac gca ggg atg tgc ctg ggg 3226
299 Leu Cys Tyr Ser Ile Leu Lys Ala Lys Asn Ala Gly Met Ser Leu Gly
300          1045          1050          1055
302 gcc aag ggc gcc gcc ggc cct ctg ccc tcc gag gcc gtg cag tgg ctg 3274
303 Ala Lys Gly Ala Ala Gly Pro Leu Pro Ser Glu Ala Val Gln Trp Leu
304          1060          1065          1070
306 tgc cac caa gca ttc ctg ctc aag ctg act cga cac cgt gtc acc tac 3322
307 Cys His Gln Ala Phe Leu Leu Lys Leu Thr Arg His Arg Val Thr Tyr
308          1075          1080          1085
310 gtg cca ctc ctg ggg tca ctc agg aca gcc cag acg cag ctg agt cgg 3370
311 Val Pro Leu Leu Gly Ser Leu Arg Thr Ala Gln Thr Gln Leu Ser Arg
312 1090          1095          1100          1105
314 aag ctc ccg ggg acg acg ctg act gcc ctg gag gcc gca gcc aac ccg 3418
315 Lys Leu Pro Gly Thr Thr Leu Thr Ala Leu Glu Ala Ala Ala Asn Pro
316          1110          1115          1120
318 gca ctg ccc tca gac ttc aag acc atc ctg gac tga tggccaccg 3464
319 Ala Leu Pro Ser Asp Phe Lys Thr Ile Leu Asp
320          1125          1130
322 cccacagcca ggccgagagc agacaccagc agccctgtca cgccgggctc tacgtcccag 3524
324 ggagggaggg ggggccaca cccaggccc caccgctggg agtctgaggc ctgagtgagt 3584
326 gtttgccga ggcctgcatg tccggctgaa ggctgagtgt ccggctgagg cctgagcgag 3644
328 tgtccagcca agggctgagt gtccagcaca cctgccgtct tcaacttcccc acaggctggc 3704
330 gctcggtcc accccagggc cagcttttcc tcaccaggag cccggttcc actccccaca 3764
332 taggaatagt ccattcccag attcgccatt gttcaccct cgccctgcc tcctttgct 3824

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VERIFICATION SUMMARY

DATE: 12/03/2001

PATENT APPLICATION: US/09/990,080

TIME: 09:26:42

Input Set : A:\PTO.DC.txt

Output Set: N:\CRF3\12032001\I990080.raw

L:10 M:270 C: Current Application Number differs, Replaced Current Application Number
L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:13 M:280 W: Numeric Identifier already exists, <140> found multiple times
L:13 M:281 W: Numeric Fields not Ordered, <140> not ordered!.
L:13 M:270 C: Current Application Number differs, Replaced Current Application Number
L:14 M:280 W: Numeric Identifier already exists, <141> found multiple times

OIPE

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/990,080

DATE: 11/28/2001

TIME: 12:09:55

Input Set : A:\018258seqList.app

Output Set: N:\CRF3\11212001\I990080.raw

**Does Not Comply
Corrected Diskette Needed**

3 <110> APPLICANT: Morin, Gregg B.
 4 Geron Corporation
 6 <120> TITLE OF INVENTION: Human Telomerase Catalytic Subunit Variants
 8 <130> FILE REFERENCE: 018/258c
 C--> 10 <140> CURRENT APPLICATION NUMBER: US/09/990,080
 C--> 11 <141> CURRENT FILING DATE: 2001-11-21
 W--> 13 <140> CURRENT APPLICATION NUMBER: US 09/128,354
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 16 <150> PRIOR APPLICATION NUMBER: US 09/052,864
 17 <151> PRIOR FILING DATE: 1998-03-31
 19 <160> NUMBER OF SEQ ID NOS: 21
 21 <170> SOFTWARE: PatentIn Ver. 2.0

ERRORED SEQUENCES

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 353 20 25 30
 355 Pro Gln Gly Trp Arg Leu Val Gln Arg Gly Asp Pro Ala Ala Phe Arg
 356 35 40 45
 358 Ala Leu Val Ala Gln Cys Leu Val Cys Val Pro Trp Asp Ala Arg Pro
 359 50 55 60
 361 Pro Pro Ala Ala Pro Ser Phe Arg Gln Val Ser Cys Leu Lys Glu Leu
 362 65 70 75 80
 364 Val Ala Arg Val Leu Gln Arg Leu Cys Glu Arg Gly Ala Lys Asn Val
 365 85 90 95
 367 Leu Ala Phe Gly Phe Ala Leu Leu Asp Gly Ala Arg Gly Gly Pro Pro
 368 100 105 110
 370 Glu Ala Phe Thr Thr Ser Val Arg Ser Tyr Leu Pro Asn Thr Val Thr
 371 115 120 125
 373 Asp Ala Leu Arg Gly Ser Gly Ala Trp Gly Leu Leu Leu Arg Arg Val
 374 130 135 140
 376 Gly Asp Asp Val Leu Val His Leu Leu Ala Arg Cys Ala Leu Phe Val
 377 145 150 155 160
 379 Leu Val Ala Pro Ser Cys Ala Tyr Gln Val Cys Gly Pro Pro Leu Tyr
 380 165 170 175
 382 Gln Leu Gly Ala Ala Thr Gln Ala Arg Pro Pro Pro His Ala Ser Gly
 383 180 185 190
 385 Pro Arg Arg Arg Leu Gly Cys Glu Arg Ala Trp Asn His Ser Val Arg
 386 195 200 205

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/990,080

DATE: 11/28/2001

TIME: 12:09:55

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Output Set: N:\CRF3\11212001\I990080.raw

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389      210                      215                      220
391 Gly Gly Ser Ala Ser Arg Ser Leu Pro Leu Pro Lys Arg Pro Arg Arg
392 225                      230                      235                      240
394 Gly Ala Ala Pro Glu Pro Glu Arg Thr Pro Val Gly Gln Gly Ser Trp
395                      245                      250                      255
397 Ala His Pro Gly Arg Thr Arg Gly Pro Ser Asp Arg Gly Phe Cys Val
398                      260                      265                      270
400 Val Ser Pro Ala Arg Pro Ala Glu Glu Ala Thr Ser Leu Glu Gly Ala
401                      275                      280                      285
403 Leu Ser Gly Thr Arg His Ser His Pro Ser Val Gly Arg Gln His His
404      290                      295                      300
406 Ala Gly Pro Pro Ser Thr Ser Arg Pro Pro Arg Pro Trp Asp Thr Pro
407 305                      310                      315                      320
409 Cys Pro Pro Val Tyr Ala Glu Thr Lys His Phe Leu Tyr Ser Ser Gly
410                      325                      330                      335
412 Asp Lys Glu Gln Leu Arg Pro Ser Phe Leu Leu Ser Ser Leu Arg Pro
413                      340                      345                      350
415 Ser Leu Thr Gly Ala Arg Arg Leu Val Glu Thr Ile Phe Leu Gly Ser
416                      355                      360                      365
418 Arg Pro Trp Met Pro Gly Thr Pro Arg Arg Leu Pro Arg Leu Pro Gln
419      370                      375                      380
421 Arg Tyr Trp Gln Met Arg Pro Leu Phe Leu Glu Leu Leu Gly Asn His
422 385                      390                      395                      400
424 Ala Gln Cys Pro Tyr Gly Val Leu Leu Lys Thr His Cys Pro Leu Arg
425                      405                      410                      415
427 Ala Ala Val Thr Pro Ala Ala Gly Val Cys Ala Arg Glu Lys Pro Gln
428                      420                      425                      430
430 Gly Ser Val Ala Ala Pro Glu Glu Glu Asp Thr Asp Pro Arg Arg Leu
431                      435                      440                      445
433 Val Gln Leu Leu Arg Gln His Ser Ser Pro Trp Gln Val Tyr Gly Phe
434      450                      455                      460
436 Val Arg Ala Cys Leu Arg Arg Leu Val Pro Pro Gly Leu Trp Gly Ser
437 465                      470                      475                      480
439 Arg His Asn Glu Arg Arg Phe Leu Arg Asn Thr Lys Lys Phe Ile Ser
440                      485                      490                      495
442 Leu Gly Lys His Ala Lys Leu Ser Leu Gln Glu Leu Thr Trp Lys Met
443                      500                      505                      510
445 Ser Val Arg Asp Cys Ala Trp Leu Arg Arg Ser Pro Gly Val Gly Cys
446                      515                      520                      525
448 Val Pro Ala Ala Glu His Arg Leu Arg Glu Glu Ile Leu Ala Lys Phe
449      530                      535                      540
451 Leu His Trp Leu Met Ser Val Tyr Val Val Glu Leu Leu Arg Ser Phe
452 545                      550                      555                      560
454 Phe Tyr Val Thr Glu Thr Thr Phe Gln Lys Asn Arg Leu Phe Phe Tyr
455                      565                      570                      575
457 Arg Lys Ser Val Trp Ser Lys Leu Gln Ser Ile Gly Ile Arg Gln His
458                      580                      585                      590
460 Leu Lys Arg Val Gln Leu Arg Glu Leu Ser Glu Ala Glu Val Arg Gln

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RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/990,080

DATE: 11/28/2001
TIME: 12:09:55

Input Set : A:\018258seqList.app
Output Set: N:\CRF3\11212001\I990080.raw

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463 His Arg Glu Ala Arg Pro Ala Leu Leu Thr Ser Arg Leu Arg Phe Ile
464          610          615          620
466 Pro Lys Pro Asp Gly Leu Arg Pro Ile Val Asn Met Asp Tyr Val Val
467 625          630          635          640
469 Gly Ala Arg Thr Phe Arg Arg Glu Lys Arg Ala Glu Arg Leu Thr Ser
470          645          650          655
472 Arg Val Lys Ala Leu Phe Ser Val Leu Asn Tyr Glu Arg Ala Arg Arg
473          660          665          670
475 Pro Gly Leu Leu Gly Ala Ser Val Leu Gly Leu Asp Asp Ile His Arg
476          675          680          685
478 Ala Trp Arg Thr Phe Val Leu Arg Val Arg Ala Gln Asp Pro Pro Pro
479          690          695          700
481 Glu Leu Tyr Phe Val Lys Val Asp Val Thr Gly Ala Tyr Asp Thr Ile
482 705          710          715          720
484 Pro Gln Asp Arg Leu Thr Glu Val Ile Ala Ser Ile Ile Lys Pro Gln
485          725          730          735
487 Asn Thr Tyr Cys Val Arg Arg Tyr Ala Val Val Gln Lys Ala Ala His
488          740          745          750
490 Gly His Val Arg Lys Ala Phe Lys Ser His Val Ser Thr Leu Thr Asp
491          755          760          765
493 Leu Gln Pro Tyr Met Arg Gln Phe Val Ala His Leu Gln Glu Thr Ser
494          770          775          780
496 Pro Leu Arg Asp Ala Val Val Ile Glu Gln Ser Ser Ser Leu Asn Glu
497 785          790          795          800
499 Ala Ser Ser Gly Leu Phe Asp Val Phe Leu Arg Phe Met Cys His His
500          805          810          815
502 Ala Val Arg Ile Arg Gly Lys Ser Tyr Val Gln Cys Gln Gly Ile Pro
503          820          825          830
505 Gln Gly Ser Ile Leu Ser Thr Leu Leu Cys Ser Leu Cys Tyr Gly Asp
506          835          840          845
508 Met Glu Asn Lys Leu Phe Ala Gly Ile Arg Arg Asp Gly Leu Leu Leu
509          850          855          860
511 Arg Leu Val Asp Asp Phe Leu Leu Val Thr Pro His Leu Thr His Ala
512 865          870          875          880
514 Lys Thr Phe Leu Arg Thr Leu Val Arg Gly Val Pro Glu Tyr Gly Cys
515          885          890          895
517 Val Val Asn Leu Arg Lys Thr Val Val Asn Phe Pro Val Glu Asp Glu
518          900          905          910
520 Ala Leu Gly Gly Thr Ala Phe Val Gln Met Pro Ala His Gly Leu Phe
521          915          920          925
523 Pro Trp Cys Gly Leu Leu Leu Asp Thr Arg Thr Leu Glu Val Gln Ser
524          930          935          940
526 Asp Tyr Ser Ser Tyr Ala Arg Thr Ser Ile Arg Ala Ser Leu Thr Phe
527 945          950          955          960
529 Asn Arg Gly Phe Lys Ala Gly Arg Asn Met Arg Arg Lys Leu Phe Gly
530          965          970          975
532 Val Leu Arg Leu Lys Cys His Ser Leu Phe Leu Asp Leu Gln Val Asn
533          980          985          990

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RAW SEQUENCE LISTING

DATE: 11/28/2001

PATENT APPLICATION: US/09/990,080

TIME: 12:09:55

Input Set : A:\018258seqList.app

Output Set: N:\CRF3\11212001\I990080.raw

535 Ser Leu Gln Thr Val Cys Thr Asn Ile Tyr Lys Ile Leu Leu Leu Gln
 536 995 1000 1005
 538 Ala Tyr Arg Phe His Ala Cys Val Leu Gln Leu Pro Phe His Gln Gln
 539 1010 1015 1020
 541 Val Trp Lys Asn Pro Thr Phe Phe Leu Arg Val Ile Ser Asp Thr Ala
 E--> 542 1025 1030 1035 1040
 changed to 544 Ser Leu Cys Tyr Ser Ile Leu Lys Ala Lys Asn Ala Gly Met Ser Leu
 1025 545 1045 1050 1055
 547 Gly Ala Lys Gly Ala Ala Gly Pro Leu Pro Ser Glu Ala Val Gln Trp
 548 1060 1065 1070
 550 Leu Cys His Gln Ala Phe Leu Leu Lys Leu Thr Arg His Arg Val Thr
 551 1075 1080 1085
 553 Tyr Val Pro Leu Leu Gly Ser Leu Arg Thr Ala Gln Thr Gln Leu Ser
 554 1090 1095 1100
 556 Arg Lys Leu Pro Gly Thr Thr Leu Thr Ala Leu Glu Ala Ala Ala Asn
 E--> 557 1105 1110 1115 1120
 changed to 559 Pro Ala Leu Pro Ser Asp Phe Lys Thr Ile Leu Asp
 1105 560 1125 1130

Numbering
misaligned

VERIFICATION SUMMARY

DATE: 11/28/2001

PATENT APPLICATION: US/09/990,080

TIME: 12:09:56

Input Set : A:\018258seqList.app

Output Set: N:\CRF3\11212001\I990080.raw

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L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:13 M:280 W: Numeric Identifier already exists, <140> found multiple times
L:13 M:281 W: Numeric Fields not Ordered, <140> not ordered!.
L:13 M:270 C: Current Application Number differs, Replaced Current Application Number
L:14 M:280 W: Numeric Identifier already exists, <141> found multiple times
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:542 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
M:332 Repeated in SeqNo=2